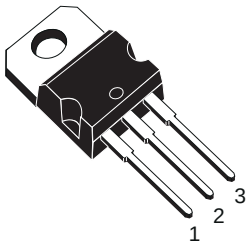
BD241A/B/C
BD242A/B/C

COMPLEMENTARY SILICON POWER TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES



TO-220

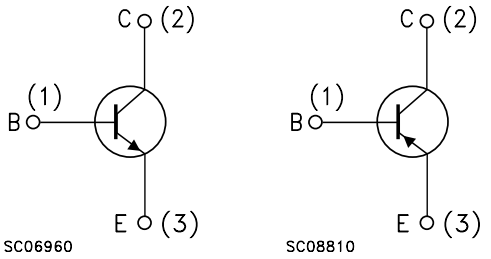
DESCRIPTION

The BD241A, BD241B and BD241C are silicon epitaxial-base NPN transistors mounted in Jedec TO-220 plastic package.

They are inteded for use in medium power linear and switching applications.

The complementary PNP types are BD242A, BD242B and BD242C respectively.

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value			Unit
		NPN	BD241A	BD241B	BD241C	
		PNP	BD242A	BD242B	BD242C	
V_{CER}	Collector-Base Voltage (R_{BE} = 100 Ω)		70	90	115	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		60	80	100	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		5			V
I_C	Collector Current		3			A
I_{CM}	Collector Peak Current		5			A
I_B	Base Current		1			A
P_{tot}	Total Dissipation at $T_c \leq 25\ ^oC$		40			W
P_{tot}	Total Dissipation at $T_{amb} \leq 25\ ^oC$		2			W
T_{stg}	Storage Temperature		-65 to 150			^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	3.13	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	62.5	°C/W

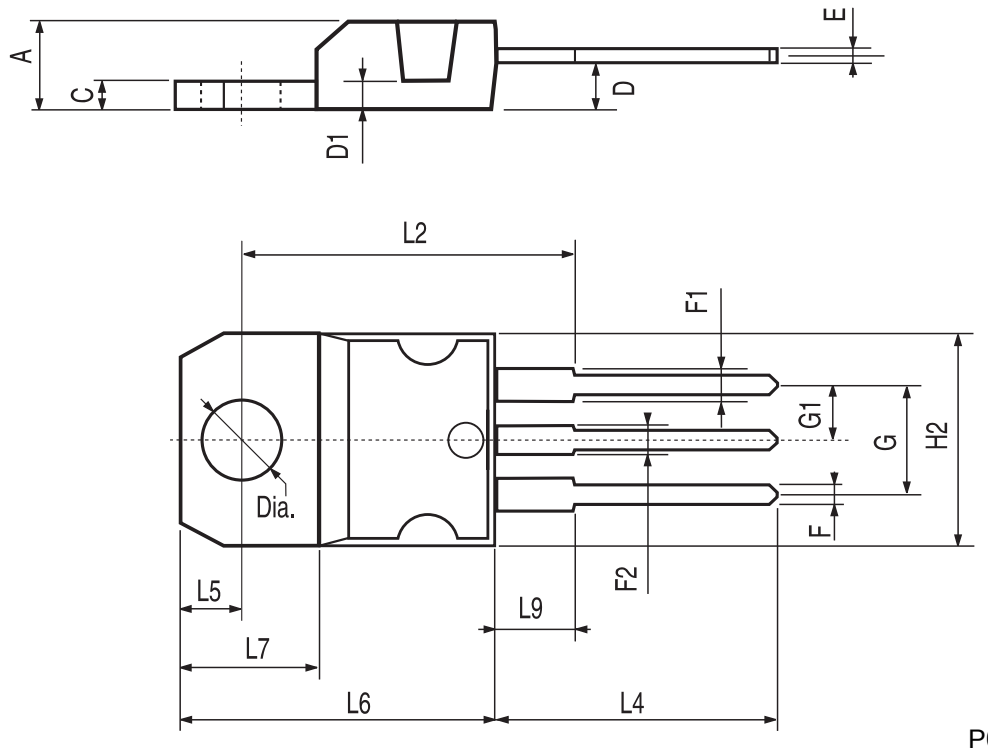
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = rated V_{CEO}			0.2	mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	for **BD241A/BD242A** V_{CE} = 30 V for **BD241B/BD242B** V_{CE} = 60 V for **BD241C/BD242C** V_{CE} = 60 V			0.3 0.3 0.3	mA mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 30 mA for **BD241A/BD242A** for **BD241B/BD242B** for **BD241C/BD242C**	 60 80 100			 V V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 3 A I_B = 0.6 A			1.2	V
V_{BE}*	Base-Emitter Voltage	I_C = 3 A V_{CE} = 4 V			1.8	V
h_{FE}*	DC Current Gain	I_C = 1 A V_{CE} = 4 V I_C = 3 A V_{CE} = 4 V	25 10			
h_{fe}	Small Signal Current Gain	I_C = 0.5 A V_{CE} = 10 V f = 1MHz I_C = 0.5 A V_{CE} = 10 V f = 1KHz	3 20			

* Pulsed: Pulse duration = 300 µs, duty cycle ≤ 2 %
For PNP types voltage and current values are negative.
For the characteristics curves see TIP31/TIP32 series.

TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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